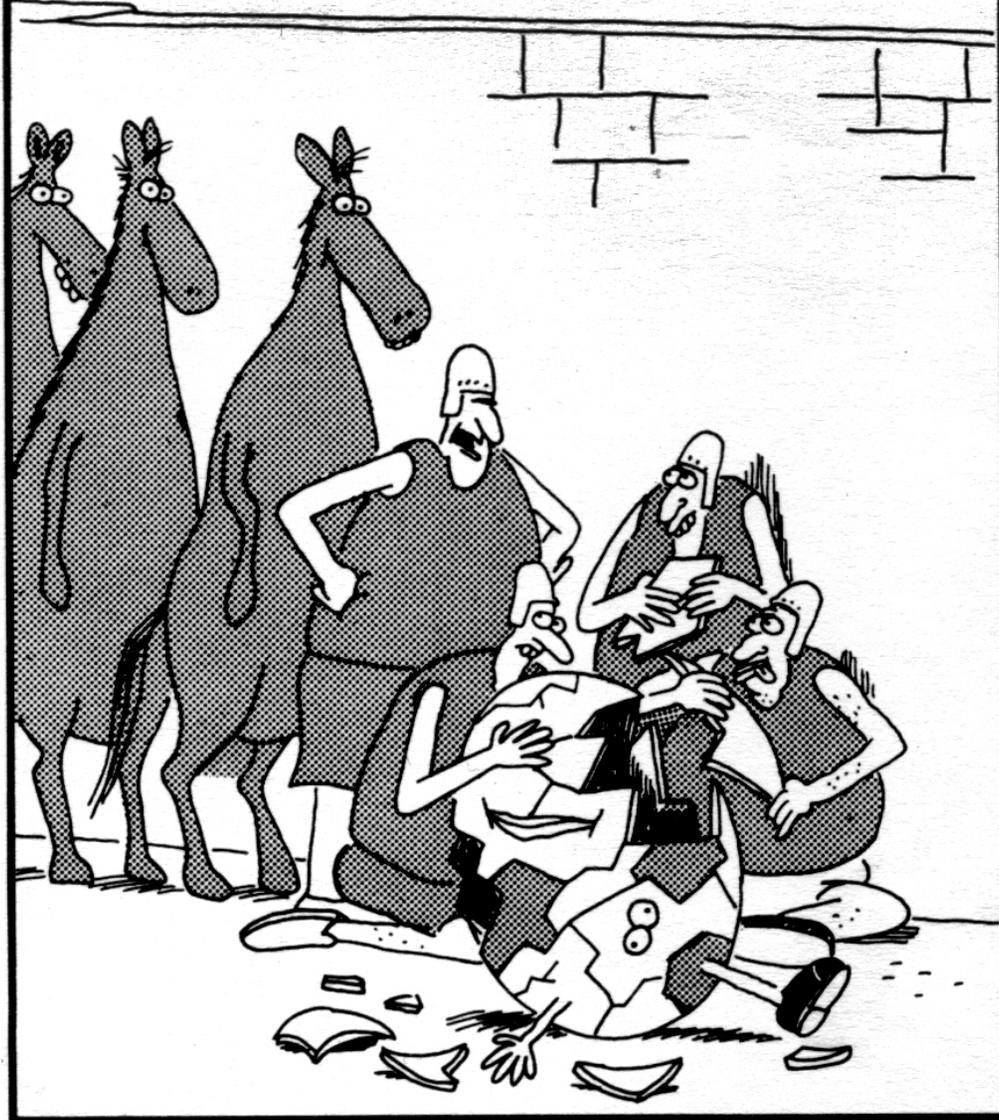


**NTSB Public Forum on  
Motorcycle Safety:  
Rider Protective Equipment  
--Helmets--**

**David R. Thom, MS  
Collision and Injury Dynamics  
El Segundo, California  
[www.ci-dynamics.com](http://www.ci-dynamics.com)**

1986

*Larson*



“OK, OK, you guys have had your chance—  
the horses want another shot at it.”

# Helmet Effectiveness

**50% of all riders were helmeted in Los Angeles, 40% in crashes were helmeted and only 20% of the fatally injured riders wore helmets.**

# Helmet Effectiveness

**Unhelmeted injured riders are three times more likely to suffer brain injury.**

**(CODES, 1998)**

# Helmet Effectiveness

**Helmets have no effect  
— positive or negative —  
on neck injury.**

# Helmet Myths Busted

Helmet do not break necks

Helmet do not block vision

Helmet do not cause hearing problems

Helmet don't add to inertial injury

Goldstein was wrong

# Helmet Drawbacks

- **Can be expensive**
- **Are easily stolen**
- **Inconvenient after arrival**
- **Cause “helmet hair”**
- **Can be hot depending on coverage and weather**

# Helmet Standards

- **FMVSS No. 218 (DOT)**
  - **Mandatory\*** for motorcycle use
  - **\* weakly enforced**
- **Snell Memorial Foundation**
- **British Standards Institution 6658**
- **ECE 22.05 (European Commission)**
- **None for novelty helmets**

# Helmet Standards

- **FMVSS No. 218 (DOT)**
- **Promulgated 1974**
- **Updated 1980, 1988**
- **Update Feasibility Study completed 1997**
- **Additional update work complete**
- **Current labeling requirements hinder enforcement**
- **No date set for update**

# Helmet Coverage: Partial and Open Face



# Helmet Coverage: Full Face and Modular



# Helmet Coverage: Partial and Fake



# Legislation

- Universal helmets laws increase helmet use from voluntary 50-60% to often 100%

# Universal helmet laws do not mean universal head protection



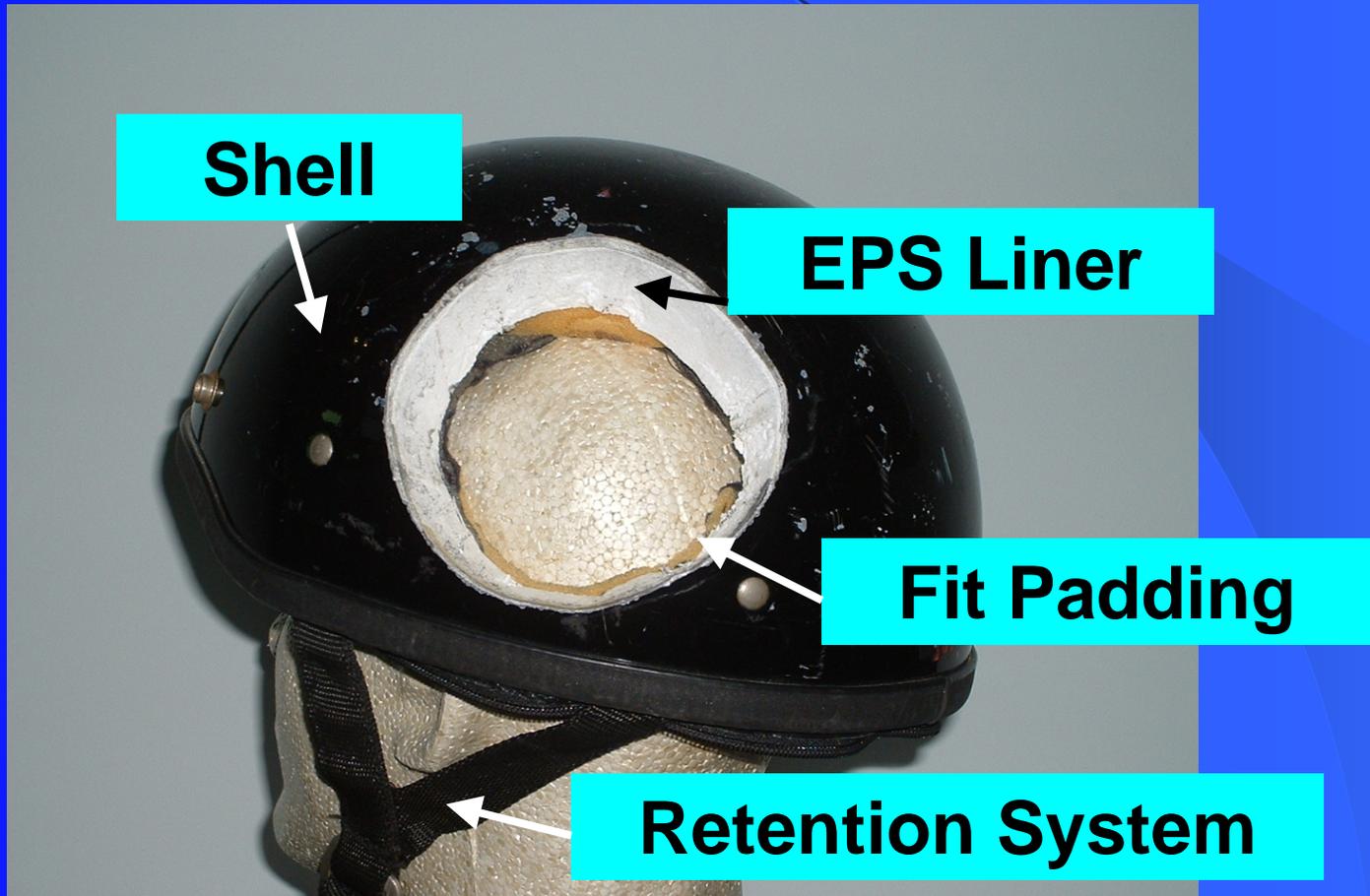
- 18 states with universal helmet laws
- 30 states with partial laws (e.g., under 21)
- 3 states with no helmet requirements

# Universal helmet laws do not mean universal head protection



In universal helmet law states, up to 40% of riders are wearing unqualified novelty helmets.

# Helmet Components



# Novelty Helmet



VIVENDI AFTER MESSIER  
WIND POWER

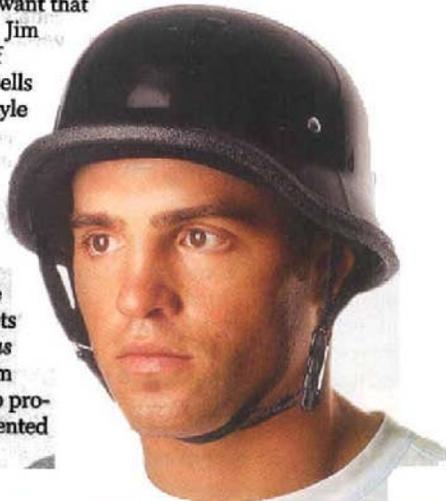
TIME

IN GEAR

**Heads Up on Retro Helmets**

NAZI-INSPIRED MOTORCYCLE helmets have been around since, well, the Nazis. But now they're becoming the headgear of choice for a growing corps of professionals who want that bad-boy biker image. Jim Peacock, president of Butthead Novelties, sells about 500 German-style helmets a month—up 20% from a year ago—at \$50 each to customers in “the In-crowd kind of states like California.” John Daniele, owner of the online retailer Helmets R Us ([www.helmetsrus.com](http://www.helmetsrus.com)), confirms it. “I’m selling them mostly to professional, business-oriented people,” he says.

Not everyone thinks the fad is smart, since the trendy styles tend to be too lightly padded. “It’s like having a fake fire extinguisher,” says David Thom of the Head Protection Research Laboratory. “Sure, it will keep you from scraping your skull, but it won’t protect your brain.” —*By Clare Demerse*



“It’s like having a fake fire extinguisher,” says David Thom

*Time Magazine  
Sept. 12, 2002*

# Fatality Rates and Helmet Law Repeals

- Arkansas + 21%
- Texas + 31%
- Kentucky + 37%
- Louisiana + 48%

# Research Needed

- The National Agenda for Motorcycle Safety (NAMS) strongly encouraged research in crash causation and other areas because far more than helmet laws has changed :
  - Helmets themselves
  - Motorcycles
  - Cars and SUVs
  - Rider and car driver demographics
  - Driver distractions